The laboratory has its greatest workload from November through March due to the thousands of agricultural samples received at this time. Turn-around time can be six weeks or more. Anyone who can schedule their sampling at another time of year is urged to do so.

Problem samples should be taken from around actively growing plants whenever growth or plant discoloration occurs. To make sure these samples receive priority treatment when they arrive at the laboratory, label the outside of the shipping containers prominently with the words *PROBLEM SAMPLES*.

Frequency of sampling

For coastal plain soils, collect samples every two years or test one-half of your land every year. Sandy soils lose nutrients and become acidic more quickly than the fine-textured clay soils found in piedmont and mountain regions. In these two regions, collect samples every three years or test one-third of your land every year.

Depth of sampling

For cultivated crops, sample the plow layer, usually six to eight inches (Figure 1). Before establishing new lawns, pastures, orchards or other large no-till or minimum-tillage areas, sample to a depth of six to eight inches. For established no-till or minimum tillage areas, take cores to a depth of four inches.

Traditional sampling strategy

When a 5- to 15-acre field of similar soil type will be limed and fertilized uniformly, collect a soil sample of 15 to 20 cores using a zigzag pattern (Figure 2A). This approach will help ensure that overall field conditions and variability are taken into account. It is best to divide fields greater than 15 acres into smaller units (about 5 acres) until variability is known.

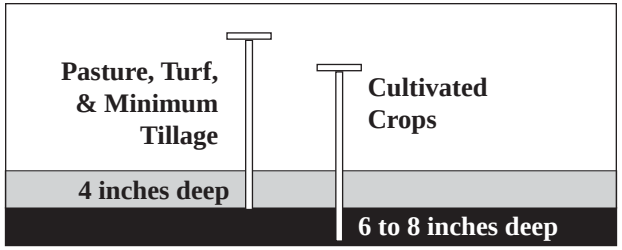

Figure 1. Proper sampling depth depends on tillage practices for the area sampled.

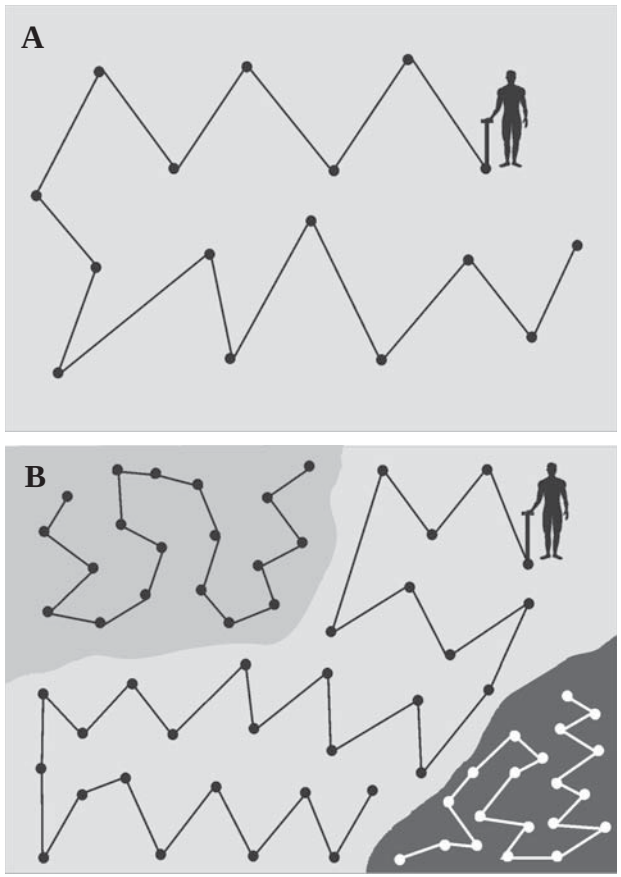

Figure 2. Sampling strategies. **A)** Use a zigzag pattern to collect cores randomly from a field with uniform soil. **B)** Subdivide fields that have distinct zones (soil type, cropping history, etc.) if it is feasible to lime and fertilize each area separately.

In any sampling, avoid small areas that differ markedly from the rest of the field—wet spots, severely eroded areas, old building sites, fence rows, spoil banks, burn row areas, old woodpile or fire sites and fertilizer application bands. Such samples can bias evaluations of a field's nutrient-supplying capacity.

Intensive sampling strategy

Over recent years, use of global positioning systems (GPS) has become increasingly used to document soil variability. This approach to soil testing is often coupled with variable nutrient application to match soil test needs. Information about precision sampling may be found at www.soil.ncsu.edu/publications/Soilfacts/AG-439-36/AG-439-36.pdf.

Grid sampling is a type of precision sampling whereby samples are collected in a field that has been overlaid with grids typically 2.5 acres in size. Within a grid, cores may be collected randomly (***cell sampling***) or at a certain distance from the center of the grid (***point sampling***).

Directed sampling is another technique that is also used to observe soil variability and fine-tune nutrient application. Sample areas are delineated using various spatial data (yield data, electrical conductivity, elevation, etc.). Samples are usually taken randomly within a zone. Directed sampling may be referred to as ***zone sampling*** (Figure 2B).